

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
Before the Board of Patent Appeals and Interferences

In re Patent Application of

Atty Ekt: LSN-36-1493

C# M#

Confirmation No. 4036

TC/A.U.: 3627

Examiner: Vanel Frenel

Date: May 23, 2008

ANDERSON et al

Serial No. 09/914,294

Filed: August 27, 2001

Title: BILL IMAGE GENERATION



Mail Stop Appeal Brief - Patents

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

☐ **Correspondence Address Indication Form Attached.**

☐ **NOTICE OF APPEAL**

Applicant hereby **appeals** to the Board of Patent Appeals and Interferences

from the last decision of the Examiner twice/finally rejecting \$510.00 (1401)/\$255.00 (2401) \$
applicant's claim(s).

☒ An appeal **BRIEF** is attached in the pending appeal of the
above-identified application \$510.00 (1402)/\$255.00 (2402) \$ 510.00

☐ Credit for fees paid in prior appeal without decision on merits \$-()

☐ A reply brief is attached. (no fee)

☐ Petition is hereby made to extend the current due date so as to cover the filing date of this
paper and attachment(s)
One Month Extension \$120.00 (1251)/\$60.00 (2251)
Two Month Extensions \$460.00 (1252)/\$230.00 (2252)
Three Month Extensions \$1050.00 (1253)/\$525.00 (2253)
Four Month Extensions \$1640.00 (1254)/\$820.00 (2254) \$

☐ "Small entity" statement attached.

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TOTAL FEE ENCLOSED \$ 510.00

☒ **CREDIT CARD PAYMENT FORM ATTACHED.**

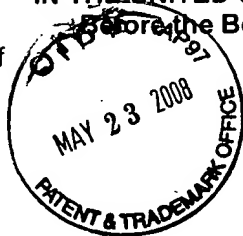
Any future submission requiring an extension of time is hereby stated to include a petition for such time extension.
The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, in the fee(s) filed, or
asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this
firm) to our **Account No. 14-1140**. A duplicate copy of this sheet is attached.

901 North Glebe Road, 11th Floor
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NIXON & VANDERHYE P.C.
By Atty: Larry S. Nixon, Reg. No. 25,640

Signature: Larry S. Nixon

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Any future submission requiring an extension of time is hereby stated to include a petition for such time extension. The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, in the fee(s) filed, or asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our **Account No. 14-1140**. A duplicate copy of this sheet is attached.

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NIXON & VANDERHYE P.C.
By Atty: Larry S. Nixon, Reg. No. 25,640

Signature:

Larry S. Nixon



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May 23, 2008

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF UNDER 37 C.F.R. § 41.37(c)

Sir:

Applicant has appealed to the Board of Patent Appeals and Interferences (Notice of Appeal filed March 26, 2008) from the last decision of the Examiner (Final Office Action dated October 26, 2007). An appeal brief pursuant to 37 C.F.R. § 41.37(c) is now presented.

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ANDERSON et al
Serial No. 09/914,294
May 23, 2008

(I) REAL PARTY IN INTEREST

The real party in interest is British Telecommunications public limited company, a British corporation of the United Kingdom.

(II) RELATED APPEALS AND INTERFERENCES

As noted in Applicant's Second Preliminary Amendment and Information Disclosure Statement filed on October 31, 2001, this case is related to commonly assigned co-pending applications Serial Nos. 09/914,291 and 09/914,295.

The '291 application issued as U.S. Patent No. 6,804,337 on October 12, 2004.

An Appeal Brief was filed on February 7, 2008 in connection with the '295 application. The appeal in the '295 application may or may not directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

The appellant, the undersigned, and the assignee are not aware of any other related appeals, interferences, or judicial proceedings (past or present), which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

(III) STATUS OF CLAIMS

Claims 1-22 are pending and have been rejected. The rejection of claims 1-22 is being appealed. No claims have been substantively allowed

(IV) STATUS OF AMENDMENTS

No amendments have been filed since the date of the Final Rejection.

Accordingly, the current status of the claims is the same as that presented in the
Amendment filed July 18, 2007.

(V) SUMMARY OF CLAIMED SUBJECT MATTER

Each independent claim, each dependent claim argued separately, and each claim having means plus function language is summarized below including exemplary reference(s) to page and line number(s) of the specification.

A. Introduction

The invention of the claims relates to a computer implemented billing method and system, arranged to assign a charge type identifier (CTI) to each of a number of usage records and to process each usage record in dependence on its assigned CTI to produce a bill image, the format of the bill image being dependent on the CTIs of the usage records.

B. Independent Method Claim 1

Independent method claim 1 relates to a method of generating a bill image in a computer-implemented billing system (Figs. 2 and 3; page 4, lines 18-19). The billing system is configured to generate bills relating to the use of a telecommunication network (Fig. 1; page 4, lines 18-22). A charge type identifier (CTI) is assigned to each of a number of usage records (processes 150 and 160 in Figs. 2 and 3; page 4, lines 19-20; page 11, lines 8-10; table bridging page 13-14). Each usage record is processed in dependence on its assigned CTI to produce a bill image (bill assembly process 200 in Figs 2 and 3; page 4, lines 20-21; page 12, line 18 to page 14, line 20). The format of the bill image is dependent on the CTIs of the usage records (Figs. 5a to 5e; page 4, lines 21-22; page 19 provides an example bill image).

C. Dependent Method Claims 16 and 17

Dependent method claims 16 and 17 add further features to the method of claim 1. In claim 16, a time line is generated over at least a part of which a discount scheme applies (step 620 in Fig. 6; time line data structure 700 in Fig. 7a; page 24, lines 13-14; page 25, lines 4-13). The time line is divided into a number of segments each of which corresponds to a period during which a respective version of the discount scheme was operative (step 620 in Fig. 6; segment structures 710-740 in Fig. 7a; page 24, lines 14-16; page 25, lines 13-17). Charges from usage records are accumulated for calls made during each segment (step 620 in Fig. 6 and process 130 in Fig. 2; accumulator data structures in single data stores 760-790; page 24, lines 16-18; page 25, lines 17-18). An appropriate discount is calculated from each of the accumulated charges (step 680 in Fig. 6; page 27, lines 14-20). A usage record is generated for each discount, and a CTI is subsequently assigned to each of the generated usage records to create a number of discount usage records (step 690 in Fig. 6; page 27, line 20 to page 28, line 3; table on page 28; page 28, line 14).

In addition to the features of claim 16, claim 17 further recites a method in which call usage records are accumulated by call type, the call type being obtained for the call usage records from a mapping of CTI to call type (step 630 in Fig. 6; page 26, lines 1-8).

D. Independent System Claim 22

Independent system claim 22 relates to a computer implemented billing system for generating bills relating to the use of a telecommunications network (Fig. 1, page 7; lines 19-20). A charge type identifier (CTI) is assigned to each of a number of usage records

(processes 150 and 160 in Figs. 2 and 3; page 7, line 21; page 11, lines 8-10; table bridging page 13-14). Each usage record is processed in dependence on its assigned CTI to produce a bill image (bill assembly process 200 in Figs 2 and 3; page 7, line 22; page 12, line 18 to page 14, line 20). The format of the bill image is dependent on the CTIs of the usage records (Figs. 5a to 5e; page 7, lines 22-23; page 19 provides an example bill image).

(VI) GROUND OF REJECTION TO BE REVIEWED ON APPEAL

All claims 1-22 have been rejected as allegedly being made “obvious” over Peters et al. (U.S. Patent No. 5,884,284) in view of Hogan (U.S. Patent No. 5,699,528) and Kang (U.S. Patent No. 5,793,852) under 35 U.S.C. § 103(a).

(VII) ARGUMENT

All claims 1-22 have been rejected as allegedly being made “obvious” over Peters et al. (U.S. Patent No. 5,884,284) in view of Hogan (U.S. Patent No. 5,699,528) and Kang (U.S. Patent No. 5,793,852) under 35 U.S.C. § 103(a). This rejection is respectfully traversed for at least the following reasons.

In order for a claim to be rejected under 35 U.S.C. § 103(a), each and every limitation of that claim must be taught or suggested in a reference or combination of references, and such teachings and/or suggestions must be combinable. The alleged three-way combination of Peters, Hogan, and Kang does not teach or suggest each and every limitation of independent claim 1 (and the claims dependent therefrom). For example, the prior art of record, alone and in combination, does not teach or suggest “generating a bill image in a computer-implemented billing system,” “assigning a charge type identifier (CTI) to each of a number of usage records,” or “processing each usage record in dependence on its assigned CTI to produce a bill image, the format of the bill image being dependent on the CTIs of the usage records,” as required by claim 1 and its dependents. Additionally, the prior art of record, alone and in combination, does not teach or suggest the similar features of independent claim 22. Thus, the alleged combination cannot render obvious claims 1-22.

Moreover, the alleged motivation for combining the references is highly dubious, at least insofar as it appears to be based on mere conclusory statements without any clearly articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. Indeed, the combination appears to be nothing more than a

hindsight reconstruction of Applicant's claims. For this additional reason, the alleged combination cannot render obvious the claimed invention.

The Final Office Action states that all claims 1-22 are rejected "for substantially the same reasons given in the previous Office Action [i.e., the Non-Final Office Action dated March 9, 2007]" and states that "further reasons" are presented in the Final Office Action itself. Yet, it appears from page 4 of the Final Office Action that the Examiner has attempted to re-write the Non-Final Office Action to indicate that the Examiner really relied on column 4, line 36 to column 5, line 15 of Hogan as disclosing most, if not all, of Applicant's claimed features. As pointed out in Applicant's Response filed on January 28, 2008, this seems a bit unfair. In any case, to avoid any further equivocation as to the exact grounds of rejection and particular teachings and suggestions relied upon by the Examiner, the wholly different arguments contained in the Non-Final Office Action and in the Final Office Action are addressed below, in turn. Of course, the end result remains unchanged, regardless of the exact "reasoning" used, and the particular portions of references relied upon, by the Examiner: The prior art of record, alone and in combination, fails to teach or suggest at least the above-noted features of the independent claims, and the motivation for combining the purported teachings of the references in the manner alleged by the Examiner, at best, is highly dubious.

I. The Non-Final Office Action Fails to Present a Case of Prima Facie Obviousness.

First, Applicant respectfully submits that the prior art of record, alone and in combination, fails to teach or suggest creating a bill image. Peters, the "base reference" in this Section 103 rejection, is concerned with a Cable Service Provider company

general management computer system. Naturally, such a system does include a billing function. Although this functionality is mentioned in Peters, it is more of an aside than a core part of the “invention” to which Peters is directed (which would seem to relate to a method of controlling a device referred to in Peters as a “cable converter,” or simply as a “converter”). As explained at column 5, lines 24-37 of Peters, a “cable converter” is a device located at each subscriber’s dwelling that performs television signal decoding to enable “special channels” to be watched by the subscriber either permanently or on a pay-per-view basis (presumably, this refers to a cable box).

Peters discusses billing abilities of the system (referred to generally as SAM), albeit somewhat in passing, at column 29, lines 3-20. This portion of Peters is referred to by the Examiner on page 2 of the Non-Final Office Action dated June 9, 2007. However, this paragraph simply states that the system is able to gather together relevant data for generating a bill and then somehow is capable of generating such a bill. No information is given as to how this is done. This lack of detail is not that surprising, since such a disclosure would be rather peripheral to the “invention” with which Peters is concerned.

Peters simply does not describe assigning a charge type identifier (CTI) to each of a number of usage records. Applicant is not suggesting that it has invented the general concept of automatically generating a bill from usage data -- indeed, this was general knowledge in the prior art. Moreover, in this cited portion of Peters, all that is really “taught” is the general common knowledge of automatically assembling usage data in a format suitable for presentation as a bill to a user. Furthermore, this is all that is taught by Peters with respect to bill generation in the entire document. Again, since bill

generation is not a major concern of the invention described in Peters, this lack of detail is not surprising.

Second, and as alluded to above, there appears to be some equivocation on the part of the Examiner as to where exactly in the applied references the assignment of charge type identifiers (CTIs) to records appearing in a bill image is to be found. In particular, page 2 of the Non-Final Office Action alleges that it is to be found in Peters, while page 4 of the Final Office Action alleges that it is to be found in Hogan. Notwithstanding this confusion, Applicant respectfully submits that none of the cited prior art, alone or in combination, includes any teaching or suggestion with respect to the assignment of CTIs to records appearing in a bill image, at all. For the sake of completeness, the Non-Final Office Action is addressed in this section, and the Final Office Action is addressed in the section that follows.

The portion of Peters cited on page 2 of the Non-Final Office Action (col. 17, line 39 to col. 18, line 23) has nothing to do with bill generation, at all. Rather, this portion is concerned with something that is more relevant to the actual “invention” of Peters -- namely, how to use SAM to modify information stored by SAM about a particular cable converter device such as its location, etc. Contrary to the Examiner’s implicit assertion, there is nothing in this section that seems to correspond in any way to a charge type identifier (CTI). Thus, there is no disclosure of processing each usage record in dependence on its assigned CTI to produce a bill image.

The Examiner concedes that the feature of the format of a created bill image being dependent on a CTI of the usage records is not disclosed in Peters. However, there is no

disclosure of even the assignment of CTIs to usage records either -- much less their use in creating a bill image, in any way at all.

Third, Applicant respectfully submits that the prior art of record, alone and in combination, fails to teach or suggest how an individual payee even generates a bill image. It is noted that Hogan is concerned with an electronic billing system. In this respect, the general architecture of the overall system is that there is an electronic bill payment service provider that acts as an intermediary between a number of “payees” (people who generate bills and want them to be paid by their customers) and a number of “subscribers” (customers being billed). Hogan primarily is concerned with the intermediary bill payment service provider, and not with the operation of individual payees.

All that is said about bill image generation in Hogan appears at column 4, line 53 to column 5, line 14, where Hogan simply states that each payee, instead of printing out a bill image, sends it to a bill capture device 150, “after the images are created but before they are printed.” Since the payees naturally are responsible for generating bills for sending to their clients, it is only reasonable that the intermediary service provider should not thereafter (re-)generate or edit the bill image (since this could then result in a customer of the payee being misled about the amount of money owed, etc.), and it therefore is not surprising that there is no disclosure in Hogan of the intermediary system generating bill images, at all. Rather, the bills are provided by the intermediary system to the subscribers for viewing in the exact same format as that in which they were received from the payees. Also, since Hogan is not really concerned with how the payees generate

their bill images, it is again not surprising that Hogan fails to disclose how an individual payee generates a bill image. Thus, there is no disclosure of assigning a CTI to each of a number of usage records, or of processing each usage record in dependence upon its assigned CTI to produce a bill image, or of the format of the bill image being dependent on the CTIs of the usage records.

In the Non-Final Office Action, the Examiner refers to column 4, line 36 to column 5, line 43 of Hogan as support for the proposition that Hogan somehow, in some way, suggests having a format of the bill image being dependent on the CTIs of the usage records. However, the referred to portion of Hogan does not contain any such suggestion. Rather, the cited passage seems only to clearly describe how payees send their bills to a bill capture device of the intermediary system that then forwards the bills on to a web server from which subscribers may view and pay their bills -- in the exact same form in which the payees sent them to the intermediary. There is no disclosure of generating a bill image in any way whatsoever, much less in such a way that the format of the bill image is dependent on the CTIs of the usage records.

In view of the above, Applicant respectfully submits that the rejection of all claims 1-22 as advanced in the Non-Final Office Action does not present a prima facie case of obviousness. Accordingly, Applicant respectfully requests that the rejection of claims 1-22 under 35 U.S.C. § 103(a) be reversed.

II. The Final Office Action Fails to Present a Case of Prima Facie Obviousness.

As noted above, it appears from page 4 of the Final Office Action that the Examiner has attempted to re-write the Non-Final Office Action to indicate that the

Examiner really relied on column 4, line 36 to column 5, line 15 of Hogan as disclosing most, if not all, of Applicant's claimed features. Despite such attempted ex post revisions, this lengthy portion of Hogan now relied upon still fails to make up for the many above-described deficiencies in the Non-Final Office Action. For example, none of the cited prior art, alone or in combination, teaches or suggests generating a bill image in a computer-implemented billing system -- much less assigning a charge type identifier (CTI) to each of a number of usage records, or processing each usage record in dependence on its assigned CTI to produce a bill image, with the format of the bill image being dependent on the CTIs of the usage records.

Applicant continues to disagree with the Examiner's suggestion that such features (and indeed perhaps all of the disputed features?) are disclosed in Hogan column 4, lines 36 to column 5, line 15. This passage of Hogan is reproduced below for convenience, and Applicant's brief analysis regarding what reasonably might be gleaned from each section is interposed therein:

"Also connected to network 110 is server computer 160 controlled and maintained by an electronic bill service company (EBSC), which defines the features and requirements of the electronic bill payment service in accordance with the invention, and oversees the service. Among other things, computer 160 comprises communications capabilities which include affording WWW access and sending messages in an e-mail format to the service subscribers over network 110 (col. 4, lines 36-44)."

This portion of Hogan merely appears to teach that the Electronic Bill Service Company (ESBC) (which is the subject of the present invention) includes a server 160 that is capable of accessing the Internet.

"Traditionally, insurance companies, financial institutions such as banks, and utility companies such as telephone, electric and gas companies bill their

customers for payments of insurance premiums, loans, utility services, etc. The billing is accomplished by mailing to the customers itemized bills. After receiving the bills in the mail, the customers pay the respective payees, most often by paper checks through the mail (col. 4, lines 45-52)."

This portion of Hogan merely appears to teach that, traditionally, payees generate and send paper bills to their customers.

"In accordance with the invention, EBSC has negotiated with selected payees participating in the electronic bill payment service such that the payees no longer mail the bills to the subscribers of the service, but provide the billing data concerning the subscribers to bill capture device 150 which may be a conventional computer. In practice, this bill capture device could be made part of server computer 160. Payee computers 170-1 through -K communicate with device 150 pursuant to an agreed-upon protocol (where K is the number of participating payees), and periodically download the billing data to the device through transmission links or magnetic tapes. Device 150 collects and processes bill images from the participating payees after the images are created, but before they are printed, to extract the billing data (col. 4, lines 53-67)."

This portion of Hogan merely appears to teach that the EBSC receives bill images from the payees instead of the payees having to print and post them.

"The billing data is transmitted from device 150 to server computer 160, via which the subscribers are able to access and 'browse' their bills on WWW, and pay the bills using one or more accounts such as credit, checking, and NOW accounts, home equity lines of credit, and any other accounts from which funds may be drawn. The billing data is stored in such a form that the subscribers are allowed to view full graphics of their bills on PC's, print the bills on printers connected thereto, and download them for storage. Payment transactions are routed from server computer 160 to another network or system such as MasterCard's Banknet, MasterCard Debit Switch system or the automated clearing house (ACH) for credit and/or debit authorization. Clearing and settlement of the transactions with the appropriate payees are then performed in a conventional manner (col. 5, lines 1-15)."

This portion of Hogan merely appears to teach that the bill images are sent from the bill capture device 150 to the server 160, where customers can view their bills, optionally print them out, and pay them.

There does not appear to be any relevant teaching here about the mechanics of generating a bill image, other than that this is done by the payees in the same way as they used to do it when they were generating paper bills. Indeed, there is nothing here about usage records, or assigning charge type identifiers to call records or processing each usage record in dependence upon its assigned CTI to produce a bill image, the format of the bill image being dependent upon the CTIs of the usage records.

Furthermore, it is noted that the term “usage record” has a clear meaning in the art, as explained in Applicant’s original specification at page 9, lines 4 to 6, which states “for each call or use of a chargeable service made by a customer a usage record is produced in a telecommunications exchange 10.” The art cited in the Final Office Action does not teach or suggest a number of the features required by the claimed invention -- much less this more nuanced definition of a “usage record.”

From the above, it is clear that the prior art of record, alone and in combination, fail to teach or suggest each and every limitation of Applicant’s claimed invention.

Applicant notes that the Examiner presents an extensive section of text bridging pages 4-7 of the Final Office Action that appears to have been generated with respect to a different case. For example, the Examiner refers to an alleged misinterpretation by Applicant of some of the case law cited. However, Applicant’s only passing reference to case law occurred in response to -- and thus after -- such allegations.

Applicant agrees that obviousness must be determined on the basis of the evidence as a whole. Of course, the relative persuasiveness of arguments is to be considered.

Using such a standard, the Examiner clearly has not yet presented a prima facie case of obviousness since the Examiner has not presented evidence of corresponding claim elements in the prior art. Moreover, contrary to the assertion in the Final Office Action, the Examiner has not expressly articulated the “combinations and the motivations for combinations that fairly suggest applicant’s claimed invention.” In the context of cited prior art that fails to teach any of the claimed features, it is hard to understand how one of ordinary skill in the art at the time of the invention would have found it “obvious” to make any combination of the features that are actually disclosed in either of these two references. And even if all the features of both references are somehow “combined,” they still necessarily fail in that combination to teach or suggest many of Applicant’s claimed features, including those noted above.

The Examiner argues that the outstanding grounds of rejection, which combine alleged features of these references, is “based on the logic and scientific reasoning of one ordinarily skilled in the art at the time of the invention.” However, it is not understood how “logic and scientific reasoning” can create something out of whole cloth. Unless the claimed features of Applicant’s invention can be found in at least one of the cited references, there is no “logic and scientific reasoning” available that would permit the combination of these references to somehow cause such features to appear for the first time -- much less to then be combinable in the manner alleged by the Examiner.

Applicant does agree with the Examiner’s quotation from prior case law to the effect that “[the Examiner] can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in

the art would lead that individual to combine the relevant teachings of the references.”

However, for reasons already noted, Applicant respectfully submits that the Examiner in this case has not yet satisfied this agreed upon burden. That is, so far as Applicant can ascertain, there are no objective teachings or suggestions in the cited prior art of many of the claimed features of the Applicant’s invention -- much less any knowledge to be gleaned from the four corners of these prior art patents that, even if combined, would demonstrate knowledge generally available to one of ordinary skill in the art that would lead that individual to combine purportedly “relevant teachings” of the references.

The Examiner alleges, to the contrary, that “each and every modification to combine the applied references are [sic] accompanied by selection portions of the respective reference(s) which specifically support that particular motivation and/or an explanation based on the logic and scientific reasoning of one ordinarily skillined in the art at the time of the invention” However, the Examiner’s allegations are not supported by the portions of these references referred to in the Office Actions, as shown above. Furthermore, Applicant has studied the entirety of these references and fails to find anywhere in these references the features the Examiner alleges to find. If there are specific and explicit teachings as alleged by the Examiner in either of the applied references, then the Examiner has failed to identify them and the Applicant similarly has been unable to unearth them.

This is perhaps best demonstrated by the fact that the Examiner has failed to identify within either of the applied references where even the broad concept of

generating a bill image appears -- much less generating a billing image based on charge type identifiers of usage records.

In view of the above, Applicant respectfully submits that the rejection of all claims 1-22 as advanced in the Final Office Action does not present a prima facie case of obviousness. Accordingly, Applicant respectfully requests that the rejection of claims 1-22 under 35 U.S.C. § 103(a) be reversed.

III. Claim 16 and 17 Are Not Rendered Obvious for Additional Reasons.

With respect to claims 16 and 17, Applicant clearly does not claim to be the first to provide a discount scheme to charges. However, Kang clearly does not teach assignment of the CTI to each of plural generated usage records (a usage record being generated for each discount) to create a number of discount usage records. The Examiner alleges such to be taught at Kang column 13, lines 1-27. However, this portion of Kang merely teaches a date coding scheme that includes, *inter alia*, a holiday table having a maximum 366 records. Thus, although it does teach a flexible charging by day/time capability, this portion of Kang does not appear to have anything whatsoever to do with a charge-type identifier being assigned to each generated usage record, etc. Thus, claim 16 should be allowable for at least this additional reason, and claim 17 should be allowable at least by virtue of its dependence from claim 16.

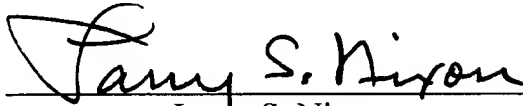
ANDERSON et al
Serial No. 09/914,294
May 23, 2008

CONCLUSION

In conclusion it is believed that the rejection of claims 1-22 is erroneous and should be reversed.

Respectfully submitted,

NIXON & VANDERHYE P.C.

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(VIII) CLAIMS APPENDIX

1. A method of generating a bill image in a computer-implemented billing system, the billing system being configured to generate bills relating to the use of a telecommunication network, the method comprising:

assigning a charge type identifier (CTI) to each of a number of usage records; and

processing each usage record in dependence on its assigned CTI to produce a bill image, the format of the bill image being dependent on the CTIs of the usage records.
2. A method according to claim 1 in which a CTI is assigned to each usage record in accordance with a set of rules.
3. A method according to claim 1, in which the processing of each usage record includes assigning a unique sort key to the usage record in dependence on its CTI for defining the relative position of the usage record in the bill image.
4. A method according to claim 2, in which the sort key is generated in dependence on the CTI and a number of fields associated with the usage record.
5. A method according to claim 3, in which the sort key is generated in accordance with a set of rules.

6. A method according to claim 3, in which the usage records are subsequently sorted according to their respective sort keys to create a sorted list.
7. A method according to claim 6, in which the sorted list is processed to generate, when appropriate, and in dependence on the CTIs of the usage records, a number of text inserts to precede or follow a usage record or group of usage records in the bill image.
8. A method according to claim 7, in which each CTI is associated with a position in a text map, in which a change in position in the text map triggers the generation of a text insert, and in which generating the text inserts comprises:
 - determining the text map position for a usage records CTI,
 - comparing the position with that determined for the previous usage record, and
 - inserting an appropriate text insert if a change in position in the text map occurs.
9. A method according to claim 8, in which the text map is a tree hierarchically defining the order in which text inserts are to appear in the bill image.
10. A method according to claim 9, in which the text map position for each CTI is a leaf node in the tree.

11. A method according to claim 9, in which each branch between a parent node and a child node in the tree represents text to be inserted in the bill image.

12. A method according to claim 1, including generating a bill image record in the bill image for a number of the usage records, the format and content of each bill image record being dependent on the CTI of the respective usage record or usage records.

13. A method according to claim 12, in which a bill image record is generated for a plurality of usage records having a common CTI.

14. A method according to claim 1, in which a number of hidden records are generated in the bill image, the hidden records containing data used to create the bill image.

15. A method according to claim 14, in which the data contained in the hidden records enables the disassembly, modification and reassembly of the bill image to create a fresh bill image.

16. A method according to claim 1, further comprising:
generating a time line over at least a part of which a discount scheme applies,
dividing the time line into a number of segments each of which corresponds to a period during which a respective version of the discount scheme was operative,

accumulating charges from usage records for calls made during each segment,
calculating an appropriate discount from each of the accumulated charges,
generating a usage record for each discount, and
subsequently assigning a CTI to each of the generated usage records to create a
number of discount usage records.

17. A method according to claim 16, in which call usage records are
accumulated by call type, the call type being obtained for the call usage records from a
mapping of CTI to call type.

18. A memory having a data structure stored therein, the data structure defining
an electronic bill image having a number of records, each record having an assigned
charge type identifier, in which the format of the bill image is dependent on the charge
type identifiers of the respective records, the bill image being created in accordance with
the method of claim 1.

19. A computer implemented billing system including at least one computer
readable memory storing computer executable instructions for performing the method of
claim 1.

20. A system according to claim 19, including a computer readable memory
storing a set of rules used to assign a CTI to a usage record.

21. A system according to claim 19, including a computer readable memory storing a set of rules used to generate a sort key for a usage record.

22. A computer implemented billing system for generating bills relating to the use of a telecommunications network arranged to perform the following operations:

assign a charge type identifier (CTI) to each of a number of usage records; and,
process each usage record in dependence on its assigned CTI to produce a bill image, the format of the bill image being dependent on the CTIs of the usage records.

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(IX) EVIDENCE APPENDIX

None.

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(X) **RELATED PROCEEDINGS APPENDIX**

None.